P1: ATALCSNAYGLTPGQQGMAQ (SEQ ID No: 6)

P2: SATQYAMEACATPTP (SEQ ID No: 7)

One internal peptide (P3) was sequenced for the PTP35.

P3: AVQGTDRCILAGIID (SEQ ID No: 8)

On page 18, please replace the second paragraph with the following:

For the internal sequencing of the peptides P1 (SEQ ID No: 6), P2 (SEQ ID No: 8) and P3 (SEQ ID No: 7), the proteins were first digested by Endolysine C, proteolytic enzyme cutting after a lysine residue.

On page 19, please replace the first paragraph with the following:

From degenerated primers deduced from the peptide P3 (SEQ ID No: 8), different fragments were amplified by the SSP-PCR technique, cloned in a plasmidic vector pGEMT (Promega, TA cloning vector), sequenced according to Sanger's method and analyzed as described above.

On page 19, please replace the fourth and fifth paragraphs with the following:

A part of the PTP55 of *E. cuniculi* corresponding to the region between the peptides P1 (SEQ ID No: 6) and P2 (SEQ ID No: 7) was cloned in an expression vector pQE30 (Qiagen) and expressed in *E. coli* (strain M15). The recombinant protein was purified by affinity chromatography on nickel columns and injected in mice. The corresponding antibodies tested in immunoblotting, immunofluorescence and transmission electron microscopy made it possible to confirm that this protein was in fact localized at the level of the *E. cuniculi* polar tube.

A part of the PTP35 between the residues 27 and 277 of (SEQ ID No: 2) was also expressed in *E. coli* using the same technique. The antibodies produced against this recombinant protein exhibited a labeling of the polar tube.

In the Claims (Marked-Up Version)

2. (Amended) The protein according to Claim [1] 4, wherein the protein has an apparent molecular weight of about 55 kDa and an isoelectric point of about 5.

4. (Amended) A microsporidian polar tube protein comprising the amino acid sequence set forth in SEQ ID No: 1[, a fragment or a functionally equivalent derivative thereof].

33. (Amended) A pharmaceutical composition which prevents infections caused by microsporidians of genus *Encephalitozoon* comprising an active protein according to Claim [1] 4 or a fragment thereof and a pharmaceutically acceptable carrier.

Kindly cancel Claims 1, 3 and 6 – 32 without prejudice and without disclaimer of the subject matter thereof.

Remarks

The Applicants acknowledge the Restriction Requirement and note with appreciation that Group VII has been rejoined with elected Group I. Accordingly, Claims 1, 2, 4, 5, 33 and 34 are pending. This Amendment cancels Claims 1, 3 and 6 – 32, thereby leaving Claims 2, 4, 5, 33 and 34 pending.

Claims 2 and 33 have been amended to change their dependencies from canceled Claim 1 to independent Claim 4.

The Applicants note with appreciation the Examiner's helpful comments concerning utilization of sequence identification tags on page 17, 20 and 21 of the Specification. Those pages have accordingly been amended to include sequence identification tags.

Claim 4 has been amended to remove reference to a fragment or a functionally equivalent derivative thereof. Withdrawal of the rejection of Claim 4 is respectfully requested.

The Applicants acknowledge the rejection of Claims 33 and 34 under §112 as non-enabling. The Application does not contain detailed experiments utilizing human or mammalian subjects for proof of efficacy of the composition utilizable to prevent infections or act as a vaccine. However, there is nothing particularly unusual about the way in which a pharmaceutical composition capable of preventing infections caused by microsporidians of genus *Encephalitozoon* is used herein. We respectfully submit that one of ordinary skill in this art, which is a highly sophisticated art having a high level of skill, would know how to utilize the composition for prevention of such infections. The protocols for such compositions are essentially well known and easily within the skill of one of ordinary skill in the art without undue experimentation. There would surely be experimentation involved. However, such experimentation would be ordinary experimentation, not undue

experimentation. Such experimentation could even be fairly voluminous. However, those of ordinary skill in the art know that fairly voluminous quantities of experimentation are not "undue" in the context herein. What is, however, important is that the Applicants herein have recognized, for the first time, that the composition comprises an active microsporidian polar tube protein comprising the amino acid sequence set forth in SEQ ID No: 1. Armed with this knowledge, we respectfully submit that one of ordinary skill in the art would readily be able to practice the invention as recited in Claims 33 and 34. Withdrawal of the §112 rejection is accordingly respectfully requested.

The Applicants acknowledge the rejection of Claims 1, 4 and 34 – 35 under §102 as being anticipated by Keohane. The Applicants have canceled Claim 1 and note that there is no Claim 35. For purposes of this response, the Applicants assume that the rejection was intended to be applied to Claims 33 – 34. In any event, Claim 4 specifically recites a microsporidian polar tube protein comprising the amino acid sequence set forth in SEQ ID No: 1. Unfortunately, there are no sequences provided in Keohane and, accordingly, there can be no anticipation of Claim 4 and the claims depending therefrom based on Keohane. Withdrawal of the 35 U.S.C. §102 rejection based on Keohane is accordingly respectfully requested.

The Applicants acknowledge the rejection of Claims 1, 2, 4, 5 and 34 – 35 over Delbac. Once again, Claim 1 has been canceled and there is no Claim 35. Accordingly, the Applicants assume the rejection is directed to Claims 33 – 34. In any event, Delbac fails to disclose a complete and purified polar tube protein. The work carried out according to Delbac provide only a general teaching concerning a polar tube protein of 55 Kda which does not allow one skilled in the art to obtain such a protein in a complete and purified form. The experimental protocol does not describe

nor teach the primers for preparing the gene and corresponding amino acids sequence, it refers only to general procedures such as protein extraction, electrophoresis, antibodies and sequencing.

Moreover, the apparent molecular mass and cross reaction are just enough to consider that the prior art and the claimed proteins may have some similar epitopes, but not that they are the same proteins. We invite the Examiner's attention to the electrophoresis profiles in the drawings where one band can contain several proteins. Accordingly, it would be in error to conclude that the sequence of the protein is inherently that of SEQ ID No.: 1. It must be remembered in applying inherency to support a rejection that the inherency must necessarily flow, not that such inherency is a possibility. At best, Delbac provides a possibility, but there is no showing that the inherency necessarily flows. Withdrawal of the 35 U.S.C. §102 rejection is respectfully requested.

In light of the foregoing, Applicants respectfully submit that the Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

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